

07/27/2001



Montana Department of
ENVIRONMENTAL QUALITY

SDMS Document ID



1059163

Judy H. Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

July 27, 2001

Jon Nickel
ASARCO Inc., East Helena
P.O. Box 1230
East Helena, MT 59635

RE: Corrective Action Management Unit (CAMU) Construction Inspections for July 6, 9, 10, and 16, 2001.

Dear Mr. Nickel:

Enclosed are copies of the inspection reports from my observations during CAMU construction. The purpose of the inspections was to:

- Determine compliance with hazardous waste generator requirements;
- Look for compliance with other State environmental requirements (e.g. air, stormwater, asbestos); and
- Observe and document the CAMU's construction.

At the time of the inspections, Asarco Inc. (Asarco) was in substantial compliance with hazardous waste generator requirements. However, Asarco's contractor, Envirocon, was verbally warned to cleanup some oil-stained soil near a used oil collection point in the vicinity of their trailer.

Thank you, Mr. Darrel Shew, and Hydrometrics and Envirocon personnel for the time spent during the inspections. If there are any questions or concerns, please feel free to contact me at 406-444-1424.

Sincerely,

Adel Johnson
Environmental Engineer

Enclosures

cc: Susan Zazzali, EPA -- Montana Office
HW Facility File: Asarco Facility File #13

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting & Compliance Division
Air & Waste Management Bureau

FIELD INVESTIGATION REPORT

SITE: ASARCO East Helena

EPA ID#: MTD006230346

LOCATION: East Helena, MT

DATE & TIME: July 6, 2001 9:15 AM

LENGTH OF INSPECTION: approximately 1 hour

CONTACTS: Darrel Shew-Asarco Inc.
Mike Oelrich-Hydrometrics Inc.

INSPECTION TEAM: Adel Johnson-Air and Waste Management Bureau, DEQ
Susan Zazzali-Montana Environmental Protection Agency

PURPOSE: Corrective Action Inspection (CAO). The purpose of the CAO was to observe the construction of a Corrective Action Management Unit (CAMU).

REPORT PREPARED BY: Adel Johnson-Air and Waste Management Bureau, DEQ

BACKGROUND: ASARCO Incorporated, East Helena Plant, (ASARCO) is a primary lead smelter that also functions as a custom smelter for a variety of on- and off-site generated materials. The plant occupies approximately 142 acres and is bound to the south by Upper and Lower Lake, to the east and northeast by Prickly Pear Creek, and to the north by East Helena and American Chemet.

In July 2000, Asarco submitted the "Final Design Analysis Report, Corrective Action Management Unit (CAMU)," which EPA subsequently approved. The CAMU will be a permanent disposal cell for soils, sediments, and demolition debris stockpiles contaminated with arsenic, cadmium, lead and other heavy metals. The waste material will come from four Lower Ore Storage piles, Shew Ridge, Lower Lake sediment, and the soil stockpile area between Upper and Lower Lake. Envirocon was retained by Asarco to build the CAMU during the 2001 construction season.

Ms. Zazzali visited the site on June 29 and July 2 to view the construction. She discovered large rocks (2 inches to 6 inches in diameter) in the clay material Envirocon was compacting for the bottom 3-foot liner layer. The clay material was not meeting the <2-inch diameter liner specification from the Design Analysis Report (DAR). Due to concern about the liner integrity being compromised from the >2-inch diameter material, all but the bottom 6-inch lift of the clay liner was removed from the CAMU for subsequent screening.

RESULTS OF INSPECTION: The inspection team parked near the acid plant cooling towers and Envirocon's trailer. There we met Darrel Shew and Kurt Wieringa (Envirocon construction supervisor) and showed them the clay liner screening specifications in the DAR. Mr. Shew commented that he was not aware there was also a specification that the top 6-inch lift be screened to

<1-inch diameter material, but this specification was clearly written in the report. We then proceeded across the county road to the CAMU construction site. A small length of the dirt county road and the crossroad to the CAMU had approximately 6-inches of new pavement.

Upon reaching the site we met Mike Oelrich and showed him the screening specifications from the DAR. Mr. Oelrich stated they had made a mistake in the bidding process concerning the <2 inch and <1 inch specifications. According to Mr. Oelrich, the data from SDRI test plots indicated that the clay material contained a high percent of fines, and compaction was not adversely affected by the larger material. Therefore, Hydrometrics based the bidding contract on the test plot results. Ms. Zazzali pointed out the screening specifications were based on EPA guidance and were approved by EPA in the DAR. If specification changes were to be made based on the test plots, they should have been approved by EPA first.

The surveyor, who was positioned at monitoring well MW-3 with his equipment, stated that less than 6-inches of the non-specification clay liner was left in the CAMU. The CAMU had sloped sides leading down to the clay liner material that was sloped toward the future leachate collection trench on the northeast edge of the CAMU. A scraper was blading-up the non-specification liner material and a sheepsfoot was compacting the liner material that was left in the CAMU.

The inspection team walked around the CAMU's edge to observe the screening process. The road was slippery to walk on because of the watering truck and the clay material. The screening operation was set up as follows. An end loader dumps the clay material into a large grate leading into a hopper. The material then travels up the conveyor to a transfer point between the conveyor and screen. Rocks and clay clods travel over the screen into a pile. The clay material falls through the screen (1½ inch) into a separate pile. Occasionally the end loader would pile the reject and soil material in separate stockpiles in opposite directions from the screen. A 1-inch screen would be brought in later for the last lift. According to Mr. Wieringa the clay material has an 8-10 percent moisture content. The clay material easily formed a ball when squeezed by hand. The screen did not have operating spray bars and some dust was visible at the transfer point. The inspection team returned to the northeast edge of the CAMU by walking across the bottom of the CAMU that contained the non-screened clay material. Cobbles as large as 6-inches in diameter were observed in the lift.

The inspection team then observed the synthetic liner materials piled on the CAMU's northeast edge. The following information was observed on their labels:

- HPDE liner: Serrot International Inc.; HDPE smooth 60 ml; 460' X 23'; 3168#
- Geonet: Evergreen Technologies Inc., subsidiary of Atlantech International Inc.; 14' X 300' = 4200 ft²

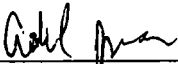
Mr. Wieringa stated they would work through the weekend. Only screening would be performed on Sunday.

The inspection team returned to the car. Two drums on a pallet were observed next to Envirocon's trailer along the facility's fence line. They were closed, in good condition and marked "Used Oil". The team also observed an excavator sorting through piles of material between Upper and Lower Lakes. There appeared to be large pieces of rock, wood posts, and pipe being sorted from the piles. When asked about the activity, Mr. Shew stated Envirocon was sorting through the material and would eventually size the material so it could be placed in the CAMU. Envirocon will be paid for the volume of material placed in the CAMU, so sizing the material will help lower the construction costs.

No violations were noted at the time. The inspection team left the facility at approximately 10:15 AM.

RECOMMENDATIONS: None

July 16, 2001
Date of Inspection Report



Adel Johnson
Environmental Engineer

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting & Compliance Division
Air & Waste Management Bureau

FIELD INVESTIGATION REPORT

SITE: ASARCO East Helena

EPA ID#: MTD006230346

LOCATION: East Helena, MT

DATE & TIME: July 9, 2001 9:45 AM

LENGTH OF INSPECTION: approximately 2 hours

CONTACTS: Darrel Shew-Asarco Inc.
Rod Kirschman-Asarco Inc.
Sanna Yost-Hydrometrics Inc.

INSPECTION TEAM: Adel Johnson-Air and Waste Management Bureau, DEQ
Susan Zazzali-Montana Environmental Protection Agency

PURPOSE: Corrective Action Inspection (CAO). The purpose of the CAO was to observe the construction of a Corrective Action Management Unit (CAMU).

REPORT PREPARED BY: Adel Johnson-Air and Waste Management Bureau, DEQ

BACKGROUND: ASARCO Incorporated, East Helena Plant, (ASARCO) is a primary lead smelter that also functions as a custom smelter for a variety of on- and off-site generated materials. The plant occupies approximately 142 acres and is bound to the south by Upper and Lower Lake, to the east and northeast by Prickly Pear Creek, and to the north by East Helena and American Chemet.

In July 2000, Asarco submitted the "Final Design Analysis Report, Corrective Action Management Unit (CAMU)," which EPA subsequently approved. The CAMU will be a permanent disposal cell for soils, sediments, and demolition debris stockpiles contaminated with arsenic, cadmium, lead and other heavy metals. The waste material will come from four Lower Ore Storage piles, Shew Ridge, Lower Lake sediment, and the soil stockpile area between Upper and Lower Lake. Envirocon was retained by Asarco to build the CAMU during the 2001 construction season.

RESULTS OF INSPECTION: The inspection team parked near the acid plant cooling towers and Envirocon's trailer. There we met Rod Kirschman of Asarco and proceeded to the CAMU construction site. Mr. Kirschman stated a new screen with larger capacity was being shipped from Spokane. Envirocon's work through the weekend included screening liner material and conducting Proctor tests on the compacted liner.

Upon reaching the site we met Sanna Yost of Hydrometrics. She stated all clay material except the bottom 6-inch lift had been excavated from the CAMU. The surveyor still needed to survey the leachate collection trench to ensure it was sloped correctly. The screen was processing about 500

yards of clay material per day, which caused the project to be behind schedule. It takes approximately 8000 yards of material per 6-inch lift. Hydrometrics ran a sieve analysis on the screened material. Even though the screen opening is 1-inch, the sieve analysis showed the largest rocks in the clay material were around $\frac{3}{4}$ of an inch. Ms. Yost said this was likely due to the steep slope of the screen. Gradation and Attenburg Limit tests are being performed on the material.

Darrel Shew and Kurt Wieringa (Envirocon construction supervisor) joined us. Mr. Shew said another screen with a higher process rate was suppose to arrive soon. Sand for the drainage layer was being delivered near the northwest edge of the CAMU. Mr. Wieringa stated they were going to start on the CAMU's northeast edge and work their way towards the southwest edge. This would allow the liner contractor to start work on the northeast edge as Envirocon worked their way to the southwest edge. Photo 1 shows a truck dumping clay liner material in the CAMU.

Some clay material that was pulled from the CAMU's bottom was placed on the CAMU's southeast edge. The wet material was being disked; however, it was being disked too deep causing large cobbles to be pulled in from underlying soil. Mr. Wieringa said the material was going to be left on this edge and compacted as part of the CAMU's toe. See photo 2 showing the disked material.

The inspection team walked around the CAMU's edge to the screening operation. See photos 3 through 7.

The inspection team left the CAMU and proceeded to the waste pile between Upper and Lower Lake. Photo 8 was taken enroute.

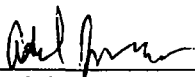
Mr. Shew joined us at the waste pile area. He stated the sorting was discontinued because of equipment breakdown. We first walked around the southern edge of the pile and continued around the pile counterclockwise. In addition to soil, the pile contained a myriad of materials including: concrete, steel building material, tires, bricks, cupels, timbers, and pallets. See attached photos 9 through 14 of the pile and material. Mr. Shaw stated the tires would be shredded to minimize their volume in the CAMU. In addition, Asarco may get an open burning permit to dispose of the sorted wooden pallets. After the pile is removed, the ground will be sloped away from Upper and Lower Lake toward the middle of the area. Precipitation would then flow toward the northwest and onto a paved area. The paved area is designed to capture stormwater and route it into the stormwater containment system.

Upon returning to the car the inspection team noticed several oil stained spots near the used oil drums. See photo 15. During the inspection on July 16, 2001, Mr. Wieringa was informed the stains needed to be cleaned-up.

The inspection team left the facility at approximately 11:55 AM.

RECOMMENDATIONS: Clean up the oil stained soil near the used oil drums.

July 17, 2001
Date of Inspection Report



Adel Johnson
Environmental Engineer

ATTACHED
PHOTOS



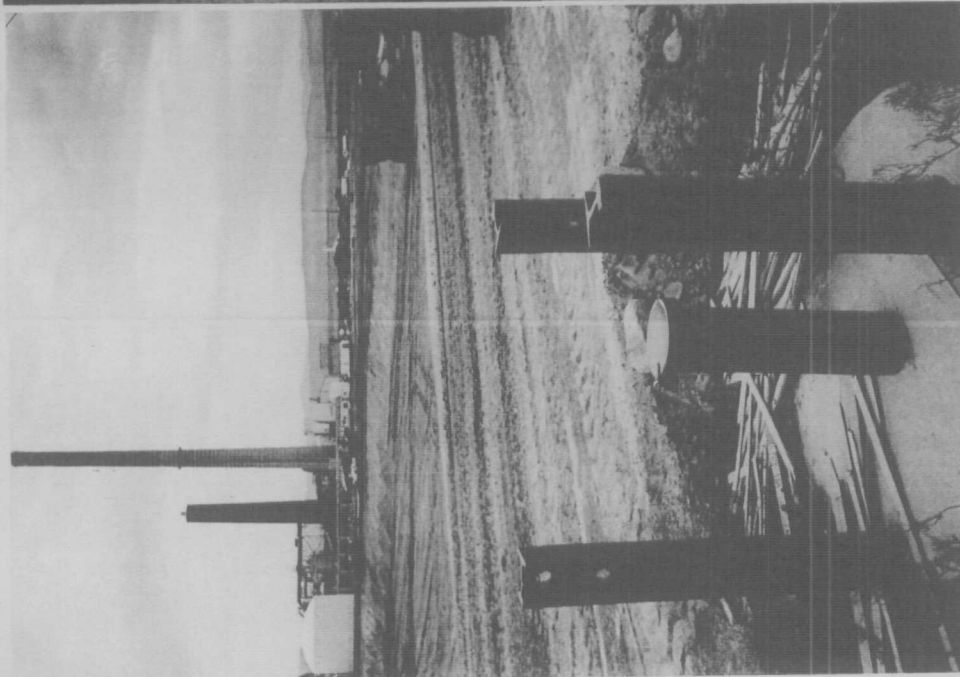
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Liner construction
 LOCATION: SE edge of CAMU looking SW; soil stockpiles
 in background
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(**CLOUDY**)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 1



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Disking clay material
 LOCATION: SE edge of CAMU
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(**CLOUDY**)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 2



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Monitoring well MW-1 looking NE
 LOCATION:
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(**CLOUDY**)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 3



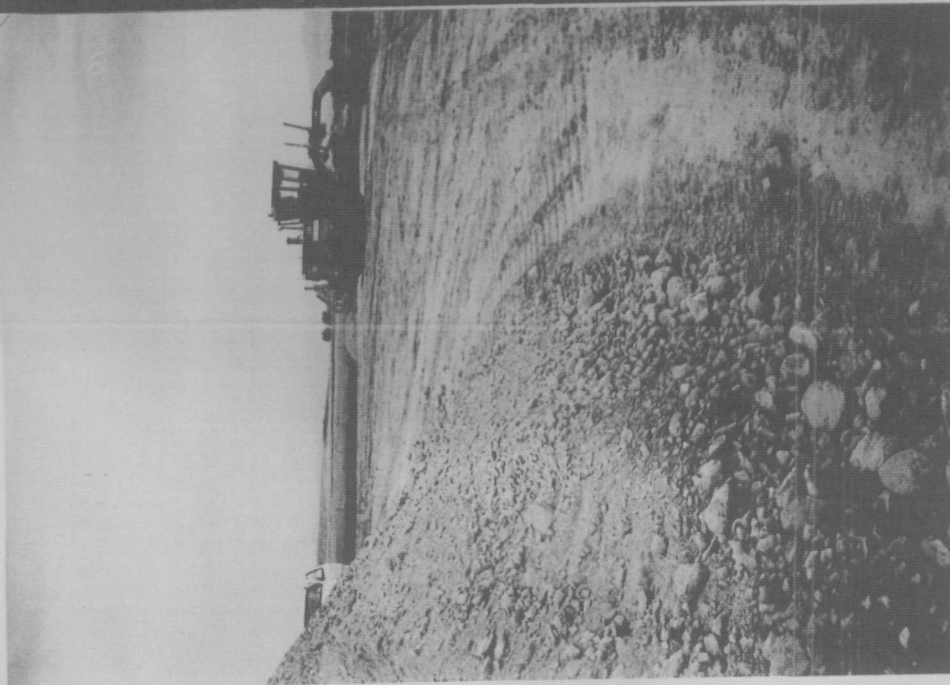
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Screening plant and screened material
 LOCATION: SW edge of construction site
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 4



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Screening plant
 LOCATION: SW edge of construction site looking N
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 5



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Cobbles sorted from clay material; stormwater fence in background
 LOCATION: SW edge of construction site
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 6



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Soil stockpiles; dark material pile is topsoil
 LOCATION: SW edge of construction site looking SW
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 7



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: New stop sign and pavement
 LOCATION: Looking across entrance to CAMU
 construction site and NW down county road;
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 8



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Waste pile material; cupels in foreground
 LOCATION: Between Upper and Lower Lake; Upper Lake
 to the left
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 9



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Divide between the sorted & non-sorted material
 LOCATION: Between Upper and Lower Lake
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(**CLOUDY**)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 10



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Divide between the sorted & non-sorted material
 LOCATION: Between Upper and Lower Lake
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(**CLOUDY**)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 11



MT DEQ/AWMB

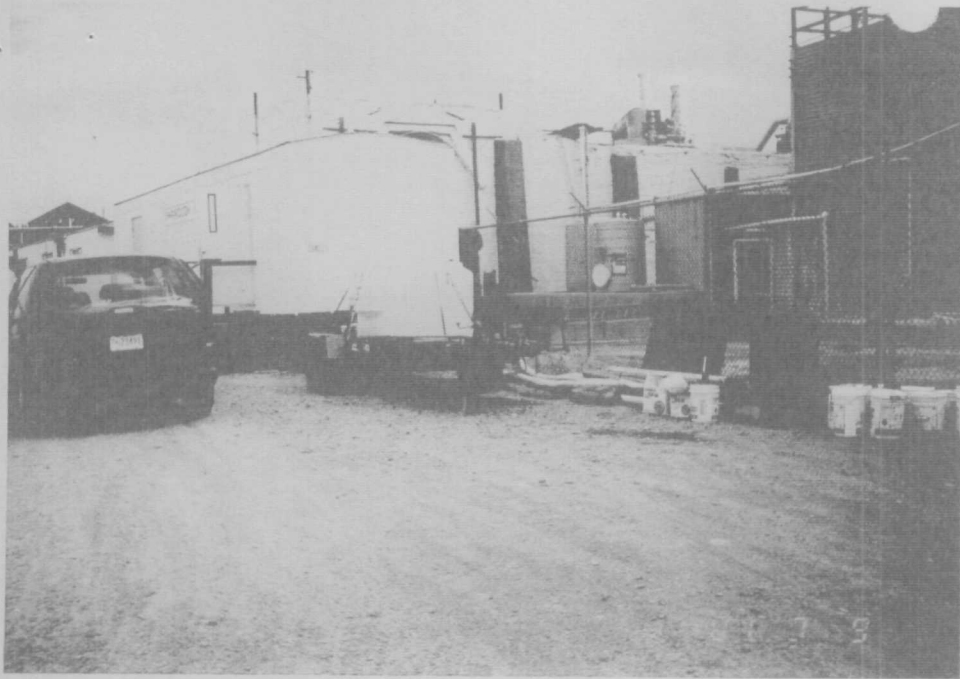
PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Waste pile material, non-soil material sorted & piled in mid-ground
 LOCATION: Between Upper and Lower Lake looking toward Upper Lake
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 12

MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Waste pile material, non-soil material sorted & piled in mid-ground
 LOCATION: Between Upper and Lower Lake looking toward Upper Lake
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 13

MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E.
 SUBJECT: Waste pile material
 LOCATION: Between Upper and Lower Lake
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/09/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 14



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU

SUBJECT: Used oil storage

LOCATION: SW of acid plant cooling tower

CITY: E. Helena COUNTY: Lewis & Clark

DATE: 07/09/01 TIME: AM

WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)

PHOTOGRAPHER (initials) Adel Johnson *aj*

WITNESS: Susan Zazzali, EPA

CAMERA: Vivitar Big View, BV35DB

FILM TYPE: color ISO: 200

NEGATIVE LOCATION: Attached to 07/16/01 CEI report

PROCESSED BY: Montana 1 Hour Photo

PHOTO# 15

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting & Compliance Division
Air & Waste Management Bureau

FIELD INVESTIGATION REPORT

SITE: ASARCO East Helena

EPA ID#: MTD006230346

LOCATION: East Helena, MT

DATE & TIME: July 10, 2001 10:00 AM

LENGTH OF INSPECTION: approximately 2 hours

CONTACTS: Del Wall-Hydrometrics

INSPECTION TEAM: Adel Johnson-Air and Waste Management Bureau, DEQ
Susan Zazzali-Montana Environmental Protection Agency

PURPOSE: Corrective Action Inspection (CAO). The purpose of the CAO was to observe the construction of a Corrective Action Management Unit (CAMU).

REPORT PREPARED BY: Adel Johnson-Air and Waste Management Bureau, DEQ

BACKGROUND: ASARCO Incorporated, East Helena Plant, (ASARCO) is a primary lead smelter that also functions as a custom smelter for a variety of on- and off-site generated materials. The plant occupies approximately 142 acres and is bound to the south by Upper and Lower Lake, to the east and northeast by Prickly Pear Creek, and to the north by East Helena and American Chemet.

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RESULTS OF INSPECTION: The inspection team parked on the southwest side of the county road at the entrance of the CAMU construction site. Upon reaching the site we met Kurt Wieringa, Envirocon construction supervisor. He stated they were screening approximately 650 yards of liner material per 10 hour day. The new screen was due to arrive at any time. They are not going to operate both screens because they do not have enough end-loaders to keep-up with both screens. The new screen comes with a 2 1/2-inch screen, so a 2-inch screen was ordered. The leachate collection trench was being further excavated based on the previous day's survey results.

Dale Wells of Hydrometrics was asked about the liner compaction testing. He stated the material was very uniform and the maximum density of the material depended on its moisture content. The percent moisture/density readings are matched to a Proctor curve. The graphs that showed the highest densities were usually not used, especially if the material seemed to have a lot of sand or gravel. The

sieve and Attenburg tests were not complete because the samples were still drying.

The inspection team then met with Mark Rhodes, sampler for Hydrometrics. He showed us four Proctor curves (dry density [pfc] verses moisture content [%]). The graphs were based on test method ASTM D698-B, a silty sand soil classification, and soil specific gravity of 2.70. The nuclear probe, a Troxler 3430 Moisture/Density Gauge, contains a cesium-137 radiation source. Mr. Rhodes was wearing a radiation dosimeter, because the probe is not completely shielded while taking a reading.

A CAT CS-563C roller compactor and a CAT CP-563D sheepsfoot compactor were in operation. These machines meet the specifications listed in the Contractor bid document. Photo 1 shows the roller compactor, watering truck, and grader working a lift and a bulldozer fixing the trench.

The inspection team proceeded to the screen operation/material stockpiles, where we met Kurt Wieringa (Envirocon construction supervisor). He stated they were double screening the >2 inch reject material, because they were concerned about running out of clay material. Some compacted liner material that was too wet (25.2 %) was being disked to dry it out before recompaction. The liner contractor is suppose to arrive on July 16. A health and safety professional will be present when the waste is hauled to the CAMU.

The inspection team walked behind the storage piles to the stormwater fence along the CAMU's southwestern border. The road on the fence's opposite side was sloped toward the fence. Photo 2 shows the fence, which did not have black plastic along the bottom of it like the other fences around the site. When asked later about the fence, Mr. Wieringa said they were not required to put the plastic along that fence due to the grade of the road. Mr. Wieringa was taking photos of the construction operation when we left at about 11:40 AM.

The inspection team returned to the construction site at approximately 1:10 PM. Del Wall of Hydrometrics was asked if they cover the liner layers when they leave for the day so that the liner does not dry out. He said they do not use a cover but instead spray the material with water before they leave each day and when they return in the morning. The method seems to work well—no cracks have been detected.

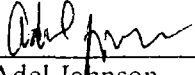
Next, Mark Rhodes (Hydrometrics) ran a density test on the material. He first took a square-nosed shovel and cleared away a 1 ½-foot square that was below the sheepsfoot's depression marks. He then used a metal plate to smooth the area. A rod was placed in a pipe protruding from the metal plate. The rod was hammered and screwed into the liner material creating a hole for the probe. He slid the probe through the pipe into the liner material. The gauge measures the moisture and density and converts it to percent compaction. The compaction reading was 96 percent, which is within specifications.

The inspection team left the facility at approximately 1:40 PM.

On July 11, 2001, Spence Willett, DEQ, and Susan Zazzali visited the CAMU construction site. Ms. Willett's photos are attached.

RECOMMENDATIONS: None

July 18, 2001
Date of Inspection Report



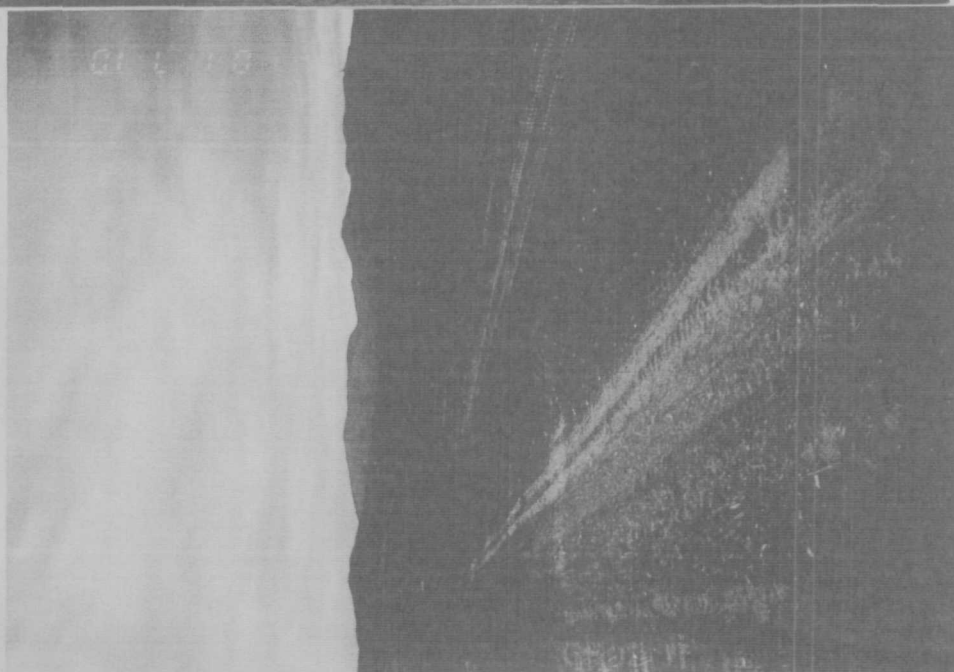
Adel Johnson
Environmental Engineer

ATTACHED
PHOTOS



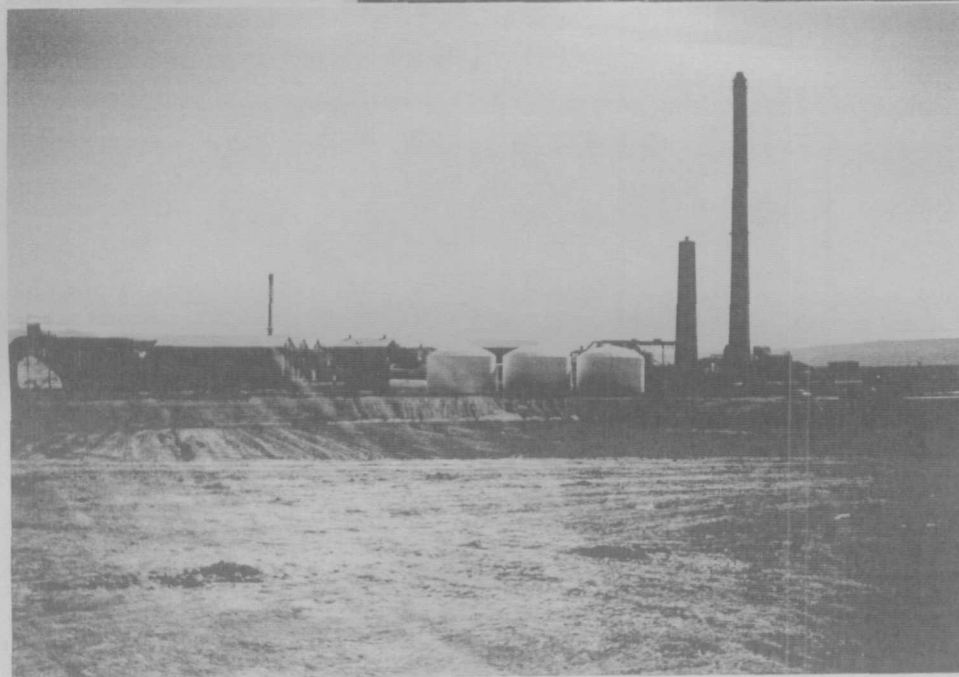
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Construction of clay liner
 LOCATION: SE edge looking N across
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/10/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 1



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Fence around construction site
 LOCATION: SW fence looking SE
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/10/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *aj*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 2



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Construction of clay liner
 LOCATION: SW edge looking NE
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER:(SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spence Willett *SW*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 3



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: New screening plant
 LOCATION: SW of CAMU near soil stockpiles
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spencee Willett S.W.
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 4



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: CAMU construction site
 LOCATION: View looking NW across construction site
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spencee Willett S.W.
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 5



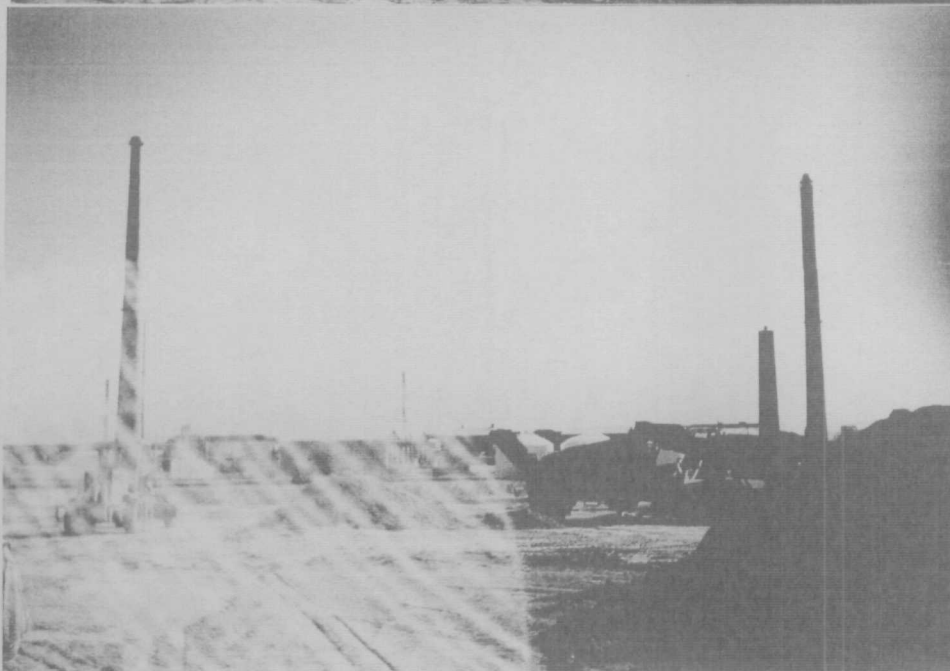
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Watering the clay liner material
 LOCATION: NE edge looking SW toward material stockpiles
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spencee Willett S.W.
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 6



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Screening operation
 LOCATION: CAMU material stockpiles
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spencee Willett *S.W.*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 7



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Screening operation
 LOCATION: CAMU material stockpiles
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/11/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Spencee Willett *S.W.*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to 07/16/01 CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 8

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting & Compliance Division
Air & Waste Management Bureau

FIELD INVESTIGATION REPORT

SITE: ASARCO East Helena

EPA ID#: MTD006230346

LOCATION: East Helena, MT

DATE & TIME: July 16, 2001 10:15 AM

LENGTH OF INSPECTION: approximately 1 1/2 hours

CONTACTS: Jon Nickel-Asarco

INSPECTION TEAM: Adel Johnson-Air and Waste Management Bureau, DEQ
Susan Zazzali-Montana Environmental Protection Agency

PURPOSE: Corrective Action Inspection (CAO). The purpose of the CAO was to observe the construction of a Corrective Action Management Unit (CAMU).

REPORT PREPARED BY: Adel Johnson-Air and Waste Management Bureau, DEQ

BACKGROUND: ASARCO Incorporated, East Helena Plant, (ASARCO) is a primary lead smelter that also functions as a custom smelter for a variety of on- and off-site generated materials. The plant occupies approximately 142 acres and is bound to the south by Upper and Lower Lake, to the east and northeast by Prickly Pear Creek, and to the north by East Helena and American Chemet.

In July 2000, Asarco submitted the "Final Design Analysis Report, Corrective Action Management Unit (CAMU)," which EPA subsequently approved. The CAMU will be a permanent disposal cell for soils, sediments, and demolition debris stockpiles contaminated with arsenic, cadmium, lead and other heavy metals. The waste material will come from four Lower Ore Storage piles, Shew Ridge, Lower Lake sediment, and the soil stockpile area between Upper and Lower Lake. Envirocon was retained by Asarco to build the CAMU during the 2001 construction season.

RESULTS OF INSPECTION: The inspection team parked southwest of the county road at the entrance of the CAMU construction site. Upon reaching the site we met an Envirocon employee. He stated they completed many lifts over the weekend. They also had to remove three inches of a lift because it was too wet from precipitation. The new double deck screening plant arrived with a 2 1/2-inch screen and a 1-inch screen. They replaced the 1-inch screen with a 2-inch screen because it kept clogging. The sheepsfoot compactor has not been compacting the CAMU's side slopes because they are too steep. Kurt Wieringa, Envirocon's construction supervisor, also restated this information when we met him later.

The inspection team proceeded to the screening operation. Photos 1 and 2 show the new screening plant. Mr. Wieringa stated the plant was not operating because of a broken belt. The liner contractor started working earlier that morning filling sandbags, but left because they could not start constructing

the HDPE liner without a complete clay liner. See photo 3 showing the sandbags. Mr. Wierringa did not have any workers sorting the material between Upper and Lower Lake, because they were all working on the clay liner. Ms. Johnson told Mr. Wierringa to clean up the spills around the used oil storage area.

The inspection team proceeded across the bottom of the CAMU to the northeast edge, where some new geotextile material was stacked. Evergreen Technologies Inc., subsidiary of Atlantech International Inc., was the material's manufacturer.

The inspection team drove through the contractor gates and parked west of the soil stockpile between Upper and Lower Lake. Two heavy equipment operators were sorting the pile and placing the metal scrap into a compactor. The compactor compressed the metal pieces into a block approximately 4 X 2 X 2 feet. The blocks will be placed in the CAMU. Photos 4 through 7 show the sorting/compaction process. One equipment operator was wearing a respirator and one was not. Later in the inspection Jon Nickel of Asarco, stated the operator's are allowed to choose whether they will wear a respirator.

The inspection team then drove to Mr. Nickel's office to discuss Asarco's written request to EPA to place additional wastes (e.g. shredded tires, concrete, unused refractory brick, rebar, scrap metal, soil samples, East Helena street sweepings) in the CAMU. Mr. Nickel stated the wastes are very small in volume compared to the overall volume of CAMU wastes, and calculations show the CAMU can accommodate the extra material. EPA will formally respond to Asarco's request by letter.

Mr. Nickel drove the inspection team to an area near the zinc plant to view the refractory brick. Pallets of tan bricks were stored both inside and outside of a covered area. Mr. Nickel said the bricks had been stored for a long time, were non-specification and unusable. A discussion ensued about their status as a hazardous waste and a remediation waste. Ms. Zazzali said the brick would probably exhibit a toxicity characteristic for chromium and should be tested. In addition, brick is not a remediation-type waste.

Mr. Nickel also showed us areas where concrete, rebar, and scrap metal were piled. He said Asarco would like to clean-up the plant by placing the materials in the CAMU. Ms. Zazzali noted the materials were probably solid wastes that could be disposed in the local landfill. Mr. Nickel stated standard procedure was to only dispose of office waste at the local landfill due to liability concerns.

Soil sample disposal was also discussed. Ms. Sanna Yost of Hydrometrics asked Mr. Nickel if historic site investigation samples could be placed in the CAMU. Ms. Zazzali said that was appropriate because the samples are a remediation-type waste.

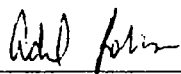
We then drove past the tire shredder and shredded tire material stored in the Highline Bins. See photo 8. The tires were used to hold down railroad car tarps or were abandoned throughout the plant, including on the piles destined for CAMU disposal.

Next, we visited the Ore Storage Building to view the East Helena street sweepings. The material was a fine, gray, powdery material. See photo 9. Ms. Zazzali agreed the sweepings were a remediation waste that could be placed in the CAMU. We then returned to Mr. Nickel's office building.

The inspection team left the facility at approximately 11:50 AM.

RECOMMENDATIONS: Clean up the oil stained soil near the used oil drums.

July 19, 2001
Date of Inspection Report



Adel Johnson
Environmental Engineer

ATTACHED
PHOTOS



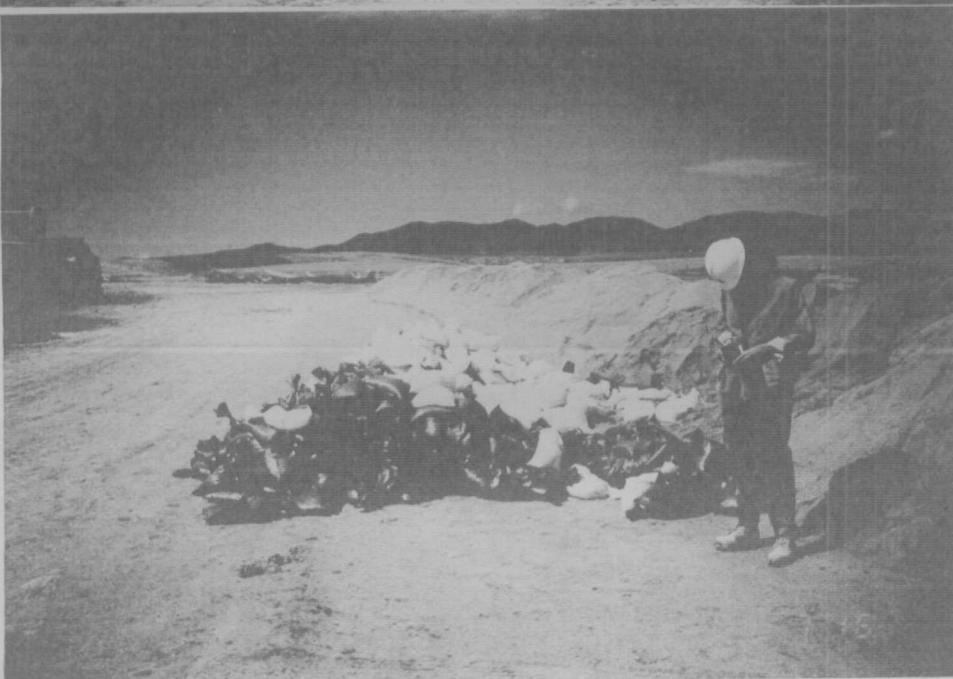
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: New screening plant
 LOCATION: SW of CAMU
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 1



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Repairing new screening plant
 LOCATION: SW of CAMU
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 2



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Filled sandbags; Susan Zazzali
 LOCATION: NW edge of CAMU
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 3



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Sorting material between Upper and Lower Lake
 LOCATION: S edge of pile looking E; Upper Lake on the right
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 4



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Sorting and compacting metal between Upper and Lower Lake
 LOCATION: S edge of pile looking E; Upper Lake on the right
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 5



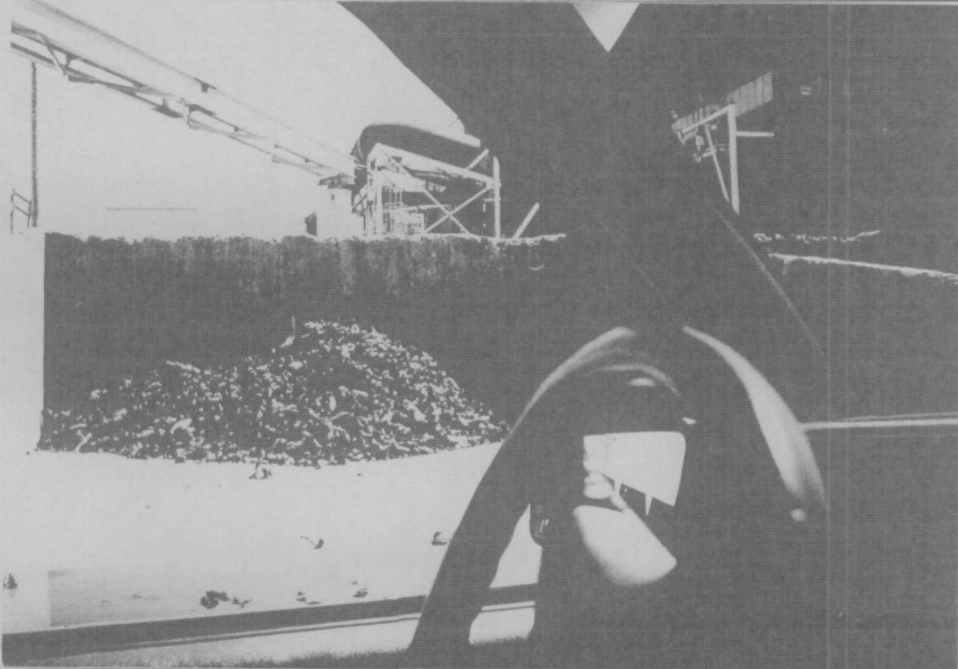
MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Sorting material between Upper and Lower Lake;
 compressed metal block center of photo
 LOCATION: S edge of pile looking E; Upper Lake on the right
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson *AJ*
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 6



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Sorting material between Upper and Lower Lake;
 operator wearing respirator
 LOCATION: S edge of pile looking E
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 7



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: Shredded tires
 LOCATION: Highline Bins
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 8



MT DEQ/AWMB

PROJECT/CASE NO: ASARCO E. Helena CAMU
 SUBJECT: E Helena sweeping material
 LOCATION: Ore Storage Building
 CITY: E. Helena COUNTY: Lewis & Clark
 DATE: 07/16/01 TIME: AM
 WEATHER: (SUN)(HAZE)(CLOUDY)(RAIN)(SNOW)
 PHOTOGRAPHER (initials) Adel Johnson
 WITNESS: Susan Zazzali, EPA
 CAMERA: Vivitar Big View, BV35DB
 FILM TYPE: color ISO: 200
 NEGATIVE LOCATION: Attached to CEI report
 PROCESSED BY: Montana 1 Hour Photo
 PHOTO# 9